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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/048,001	01/25/2002	Takahiro Fujiyama	029430-503	8112
21839	7590	10/01/2004		
BURNS DOANE SWECKER & MATHIS L L P POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER KUGEL, TIMOTHY J	
			ART UNIT	PAPER NUMBER

1712

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/048,001	FUJIYAMA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Timothy J. Kugel	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 is/are allowed.
- 6) ☒ Claim(s) 1, 4, 10-15, and 18-22 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 5-9, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/048,001.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                                    |

### **DETAILED ACTION**

1. Claims 1-23 are pending as amended on 25 January 2002.

#### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/048001, filed on 25 January 2002.

#### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
3. The abstract of the disclosure is objected to because the acronyms 'GI POFs' are not readily defined, the applicant is encouraged to amend the abstract to replace the acronyms with the term 'graded-refractive-index polymer optical fiber'. Also, the verb 'comprises' should be amended to read 'comprise' in the second sentence to agree with the subject. Correction is required. See MPEP §608.01(b).
4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: 'AROMATIC SULFIDE COMPOUNDS'.

#### ***Claim Interpretation***

5. Claims 1-17 recite an optical material comprising at least one aromatic sulfide compound as detailed in each claim; however, they claim no other specific components.

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As the sulfide compounds have optical properties and can be construed as optical materials in themselves, the claims 1-17 have been construed as the claimed sulfide compounds with no other components.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. §112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4 and 18-21 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claims 4 and 21 recite, as part of Markush type lists, "a ...thiophenethiadiazole ring..." no references to thiophenethiadiazole were found in the art. As references were found to thiophenethiodiazole, these claims were construed as such.

9. Claims 18-20 claim the compound in claim 1 as a polymer optical fiber; however, the compounds claimed in claim 1 have no polymeric functional group and are incapable of forming a polymer optical fiber.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

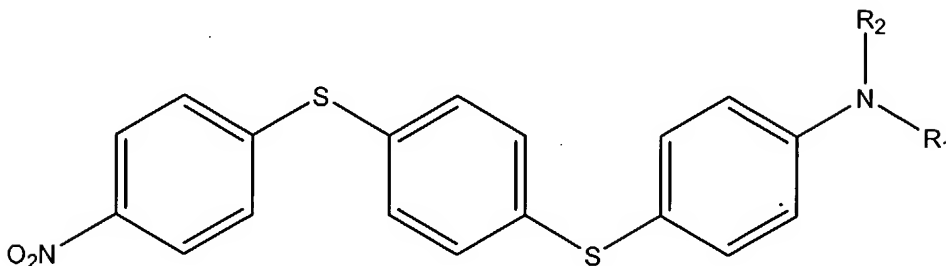
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

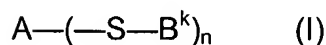
11. Claims 1, 10-13 and 21 are rejected under 35 U.S.C. §102(b) as being anticipated by Ansong (5,514,770).

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12. Ansong teaches an aromatic sulfide compound:



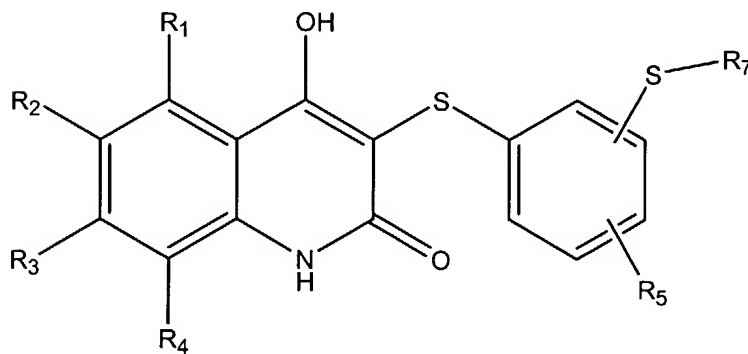
That anticipates applicants' compound:



When  $n = 2$ , A is an aromatic carbocycle ring (benzene), and  $B^1$  and  $B^2$  are substituted phenyl rings (Col. 1 Lines 10-30).

13. Claims 1,10, and 14-15 and 22 are rejected under 35 U.S.C. §102(b) as being anticipated by Park et al. (5,990,126).

14. Park et al. teach an aromatic sulfide compound:



Where  $R_5$  and  $R_7$  can include an arylthio or a saturated or unsaturated carbocyclic ring, that anticipates applicants' compound per formula (I) above when A is trivalent and a benzene ring and  $B^1$  to  $B^3$  include phenyl groups (Col. 7 Line 1 – Col. 8 Line 12).

***Allowable Subject Matter***

15. Claims 2-3, 5-9, and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claim 23 is allowed. The closest prior art to applicants' claim 23, Ansong ('770) and Park ('126), teach aromatic sulfide compounds per formula (I) above when  $n = 2$  or  $3$ ,  $k = 1, 2$ , or  $3$ ,  $A$  is a di- or tri-valent carbocyclic ring, and  $B^1$ ,  $B^2$ , and/or  $B^3$  are substituted or unsubstituted phenyl groups. The prior art does not teach aromatic sulfide compounds per formula (I) above when  $A$  is a tetra-valent carbocyclic or heterocyclic aromatic ring.

***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5,514,770	05-1996	Ansong
5,990,126	11-1999	Park et al.
4,198,403	04-1980	Alvarez
6,043,242	03-2000	Grundler
6,232,428	05-2001	Deets et al.
3,706,805	12-1972	Fujisawa et al.

18. Sugiyama et al. (6,166,125), cited in the PCT International Search Report as being of particular relevance—where the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone—speaks to the applicants' disclosure, particularly in its teaching of the use of sulfides—specifically perfluoro (diphenylsulfide)—in the formation of graded-refractive-

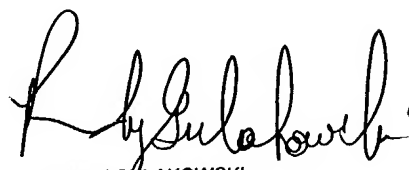
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index plastic materials, but does not teach the 2- to 12-valent aromatic sulfide compounds claimed by the applicants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached on 7:00 AM - 4:00 PM Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RANDY GULAKOWSKI  
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